

What Is Claimed Is:

1. An instantaneous electronic ballast for a metal halide lamp having a power converter for switching the output voltage of a rectifier that converts an AC power into a DC power to generate a voltage having a given frequency within a high frequency region, thus driving the metal halide lamp, a current sensor for sensing a current to be used as current control information of the power converter, and a power converter controller for controlling the power converter in response to the sensed signal of the current sensor, comprising:

a state transition circuit having a first capacitor, a first resistor and a first inductor that are sequentially serially connected between the output terminals of the power converter and the input terminals of the metal halide lamp, for supplying a state transition current necessary to shift the metal halide lamp from a glow discharge phase to an arc discharge phase.

2. The instantaneous electronic ballast for the metal halide lamp as claimed in claim 1 wherein the current sensor is installed at the front of the state transition circuit to sense only a normal current being a current for keeping a lightening state of the lamp, which is applied from the power converter to the metal halide lamp.

3. An instantaneous electronic ballast for a metal halide lamp having a power converter for switching the output voltage of a rectifier that converts an AC power into a DC power to generate a voltage having a given frequency within a high frequency region, thus driving the metal halide lamp, a current sensor for sensing a current

to be used as current control information of the power converter, and a power converter controller for controlling the power converter in response to the sensed signal of the current sensor, comprising:

5 a state transition circuit having a second capacitor, second and third resistors that are connected in parallel, and a second inductor, all of which are sequentially serially connected between the output terminals of the power converter and the input terminal of the metal halide
10 lamp, for supplying a state transition current necessary to shift the metal halide lamp from a glow discharge phase to an arc discharge phase.

4. The instantaneous electronic ballast for the
15 metal halide lamp as claimed in claim 3, wherein the time constant of the second resistor through which a charge current flows from the power converter to the second capacitor is set significantly higher than that of the third resistor through which a discharge current flows from
20 the second capacitor to the metal halide lamp.

5. The instantaneous electronic ballast for the metal halide lamp as claimed in claim 3, further comprising second and third diodes for preventing backward voltages,
25 which are serially connected on the input terminal' side of the second resistor through which a charge current flows from the power converter to the second capacitor, and the output terminal' side of the third resistor through which a discharge current flows from the second capacitor to the
30 metal halide lamp, respectively.

6. The instantaneous electronic ballast for the metal halide lamp as claimed in claims 3 ~ 5, wherein the

current sensor is installed at the front of the state transition circuit to sense only the normal current being the current for keeping the lightening state of the lamp that is supplied from the power converter to the metal
5 halide lamp.